REMARKS/ARGUMENTS

Claims 1-94 are pending in the application. Claims 1, 68 and 91 are amended, and claims 9 and 19 are cancelled without prejudice. Applicants respectfully request reexamination and reconsideration of all pending claims.

Double Patenting Rejections

Claims 1-94 stand rejected under the judicially created doctrine of obviousness-type double patenting as being allegedly unpatentable over claims 1-29 of U.S. Patent No. 5,975,893. A terminal disclaimer is being filed concurrently with this Amendment, in compliance with 37 CFR 3.73(b). Applicants therefore respectfully request withdrawal of this double patenting rejection.

Claims 1-94 are also _provisionally_ rejected under the judicially created doctrine of obviousness-type double patenting as being allegedly unaptentable over claims of copending U.S. Patent Application Serial No. 09/264,547. A terminal disclaimer is being filed concurrently with this Amendment, in compliance with 37 CFR 3.73(b). Applicants therefore respectfully request withdrawal of this double patenting rejection

Rejections under 35 USC § 103(a)

Claims 1, 7-9, 11-17 and 19-67 stand rejected under 35 USC § 103(a) as allegedly being unpatentable over U.S. Patent No. 5,338,198 to Wu et al. (hereinafter "Wu") in view of U.S. Patent No. 5,742,700 to Yoon et al. (hereinafter "Yoon). Applicants respectfully traverse this rejection.

As amended, independent claim 1 is directed to a computer-implemented method for use in creating a digital model of an individual component of a patient's dentition. The method involves receiving a data set that forms a three-dimensional (3D) representation of the patient's dentition, applying a computer-implemented test to the data set to identify data elements that represent portions of an individual component of the patient's dentition, and creating a digital model of the individual component based upon the identified data elements. The step of applying the computer-implemented test involves identifying elements of the data set that represent a structural core of the individual component to be modeled and labeling those data elements as belonging to the individual component. Furthermore, the individual component

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includes an individual tooth in the patient's dentition, and the structural core of the individual component approximately coincides with neurological roots of the tooth.

Wu relates to a three-dimensional model of the teeth of a patient that is prepared by taking molded impressions of the mandibular and maxillar teeth, placing the impressions on a support table defining an X-Y plane, and detecting the Z distance from a probe by directing a beam of laser light onto the impression and calculating from the pattern of reflected light a center of the light falling on an area array. Yoon is directed to a caries detection system for quantifying a probability of caries lesions. Neither Wu nor Yoon, nor a combination of both describes, teaches or suggests the invention of amended claim 1. Specifically, neither reference, alone or in combination, teaches applying a computer-implemented test involving identifying elements of a data set that represent a structural core of an individual component to be modeled and labeling those data elements as belonging to the individual component. Furthermore, neither reference teaches or suggests an individual component including an individual tooth in the patient's dentition, *and* a structural core of the individual component approximately coinciding with neurological roots of the tooth.

Therefore, Applicants respectfully submit that even if Wu and Yoon were combined as suggested in the Office Action, the invention of claim 1 would not be achieved. Furthermore, there is no motivation or suggestion in either Wu or Yoon to combine the references as suggested. Thus, Applicants respectfully request withdrawal of the rejection of independent claim 1 and claims 7-9, 11-17 and 19-67, which depend variously therefrom, under 35 USC § 103(a).

Claims 2-6, 10 and 18 stand rejected under 35 USC § 103(a) as allegedly being unpatentable over Wu in view of Yoon and further in view, variously, of Poirier (claims 2 and 3), Andersson (claim 4), Andreiko '243 (claim 5), Brandestini (claim 6) and Andreiko '238 (claims 10 and 18). Based on the explanation provided above, Applicants believe that amended claim 1 and all claims depending variously therefrom are patentable over the cited references. None of the combinations of references suggested in the Office Action would achieve the invention of claim 1 or claims 2-6, 10 or 18. Thus, Applicants respectfully request withdrawal of the rejection of claims 2-6, 10 and 18 under 35 USC § 103(a).

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Claims 68-90 stand rejected under 35 USC § 103(a) as allegedly being unpatentable over Wu in view of Yoon and further in view of U.S. Patent No. 5,683,243 to Andreiko et al. (hereinafter "Andreiko '243"). Applicants respectfully traverse this rejection.

Amended independent claim 68 is directed to a computer-implemented method for use in creating a digital model of a tooth in a patient's dentition. The method involves receiving a three-dimensional (3D) data set representing the patient's dentition, applying a computer-implemented test to identify data elements that represent an interproximal margin between two teeth in the dentition, and applying another computer-implemented test to select data elements that lie on one side of the interproximal margin for inclusion in the digital model. The step of applying the computer-implemented test includes identifying elements of the data set that represent the interproximal margin, and labeling those data elements as belonging to the interproximal margin.

Even if combined as suggested by the Office Action, Wu, Yoon and Andreiko '243 would not achieve the method of claim 68. Specifically, the combination does not achieve identifying elements of the data set that represent the interproximal margin, and labeling those data elements as belonging to the interproximal margin. Furthermore, there is no suggestion or motivation in any of the references to make the suggested combination. Therefore, Applicants respectfully request withdrawal of the rejection of claims 68-90 under 35 USC § 103(a).

Claims 91-94 stand rejected under 35 USC § 103(a) as allegedly being unpatentable over Wu in view of Yoon and further in view of U.S. Patent No. 5,395,238 to Andreiko et al. (hereinafter "Andreiko '238"). Applicants respectfully traverse this rejection.

Amended independent claim 91 is directed to a computer-implemented method for use in creating a digital model of a tooth in a patient's dentition. The method comprises receiving a 3D dataset representing at least a portion of the patient's dentition, including at least a portion of a tooth and gum tissue surrounding the tooth, applying a test to identify data elements lying on a gingival boundary that occurs where the tooth and the gum tissue meet, and applying a test to the data elements lying on the boundary to identify other data elements representing portions of the tooth. The step of applying the computer-implemented test includes identifying elements of the data set that represent the gingival boundary, and labeling those data elements as belonging to the gingival boundary.

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Even if combined as suggested by the Office Action, Wu, Yoon and Andreiko '238 would not achieve the method of claim 91. Specifically, the combination does not achieve applying the computer-implemented test includes identifying elements of the data set that represent the gingival boundary, and labeling those data elements as belonging to the gingival boundary. Furthermore, there is no suggestion or motivation in any of the references to make the suggested combination. Therefore, Applicants respectfully request withdrawal of the rejection of claims 91-94 under 35 USC § 103(a).

Information Disclosure Statement (IDS)

An IDS is being filed with this amendment to address Examiner's objections to the IDS filed on September 13, 2004.

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CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance and an action to that end is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,

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